

ROBERT E. BUSHNELL*†

HENRY M. ZYKORIE
JOSEPH G. SEEBER°
JOHN C. BROSKY°+*
DARREN R. CREW+*
RUY M. GARCIA-ZAMOR**†
MATTHEW J. LESTINA†*

MICHAEL D. PARKER
DANIEL A. GESELOWITZ, PH.D.
(REG. PATENT AGENTS)

* † ADMITTED IN MARYLAND
° ADMITTED IN VIRGINIA
+ ADMITTED IN PENNSYLVANIA
‡ ADMITTED IN NEW YORK
* NOT ADMITTED IN D.C.

R. E. BUSHNELL

ATTORNEY AT LAW

1522 K STREET, N.W., SUITE 300
WASHINGTON, D.C. 20005-1202
UNITED STATES OF AMERICA

INTELLECTUAL PROPERTY LAW

TELEPHONE (202) 638-5740
(202) 638-2011
FACSIMILE (202) 628-0755
FACSIMILE (202) 628-3835
(410) 747-0022

E-MAIL: 2064566@MCIMAIL.COM

- ☐ U.S. Postal Service
☐ Via Local Courier
☐ Via International Courier
☐ Via Facsimile No. _____
☐ Via E-Mail Attachment
☐ Please Acknowledge Receipt



28 December 1998

Assistant Commissioner for Patents
Washington, D.C. 20231

Attorney Docket: P55504

Sir:

Submitted herewith is the following patent application:

Inventor: KANG-DONG LEE

Title: COMPUTER SYSTEM HAVING CONFLICT FIXING
FUNCTION AND CONFLICT FIXING METHOD

Please find attached hereto an application for patent which includes: Specification and Abstract, Claims, original Declaration And Power of Attorney, Assignment, and a certified copy of the foreign priority document identified below:

Verified Showing of Small Entity Status: No

Drawings: Formal drawings, 5 sheets, Figures 1 through 9

Claim of priority under 35 U.S.C. §119: **YES**

**REPUBLIC OF KOREA Application No.:97-74450, 74451,74453 filed on 26
December 1997 and 98-22575 filed on 16 June 1998

**Fee (see formula below): CHECK IS ENCLOSED (Ch#28006 for \$40.00 and
Ch#28011 for \$878.00)**

Basic Fee \$380/760. \$760.00

Additional Fees:

Total number of claims in excess of 20 0 times \$9/18 \$00.00

Number of independent claims in excess of 3: 1 times \$39/78 \$78.00

Multiple Dependent Claims \$130/260. \$00.00

An Assignment is likewise enclosed: Recording Fee \$40. \$40.00

Filing Non-English specification. \$00.00

TOTAL FEES FOR THE ABOVE APPLICATION. \$878.00

Page 2.

Assistant Commissioner for Patents

28 December 1998

Inventor: KANG-DONG LEE

Title: COMPUTER SYSTEM HAVING CONFLICT FIXING
FUNCTION AND CONFLICT FIXING METHOD

In view of the above, it is requested that this application be accorded a filing date pursuant to 37 CFR 1.53(b).

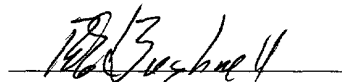
Should the encloses check becomes lost or detached from the file, the Commissioner is authorized to charge for any additional charges included, or credit any excess payment to the Deposit Account 02-4943. Kindly notify the undersigned attorney of any transaction regarding our Deposit Account.

In view of the above, it is requested that this application be accorded a filing date pursuant to 37 CFR 1.53 (b).

Please address all correspondence to:

Robert E. Bushnell
1522 " K" Street, N.W.
Suite 300
Washington, D.C. 20005-1205

Respectfully submitted,



Robert E. Bushnell
(Registration No. 27,774)
Payor No.: 008-439
Attorney for the Applicant
1522 " K" Street, N.W.
Suite 300
Washington, D.C. 20005-1205

Telephone: (202) 638-5740
Telefacsimile: (202) 628-0755

REB/sa

12/28/98

Jc408 U.S. PTO

FEE TRANSMITTAL

Patent fees are subject to annual revision on October 1
 These are the fees effective October 1, 1997.
 Small Entity payments must be supported by a small entity statement,
 otherwise large entity fees must be paid. See Forms PTO/SB/09-12
 See 37 C.F.R. §§1.27 and 1.28

Complete If Known

Application Number	to be assigned
Filing Date	28 December 1998
First Named Inventor	KANG-DONG LEE
Examiner Name	to be assigned
Group/Art Unit	to be assigned
Attorney Docket No	P55504

TOTAL AMOUNT OF PAYMENT (\$)878.00

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to.

Deposit Account Number: 02-4943
 Deposit Account Number: _____

- ☐ Charge Any Additional Fee Required Under 37 C.F.R. §1.16 and 1.17. ☐ Charge the Issue Fee Set in 37 C.F.R. §1.18 at the Mailing of the Notice of Allowance

2. ☒ Payment Enclosed: (CHK #28006 for \$40.00 & CHK#28011 for \$838.00)

☒ Check ☐ Money Order ☐ Other

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
105	130	205	65	Surcharge-late filing fee or oath	\$
127	50	227	25	Surcharge-late provisional filing fee or cover sheet	\$
139	130	139	130	Non-English specification	\$
147	2,520	147	2,520	For filing a request for reexamination	\$
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	\$
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	\$
115	110	215	55	Extension for reply within first month	\$
116	380	216	190	Extension for reply within second month	\$
117	870	217	435	Extension for reply within third month	\$
118	1,360	218	680	Extension for reply within fourth month	\$
128	1,850	228	925	Extension for reply within fifth month	\$
119	300	219	150	Notice of Appeal	\$
120	300	220	150	Filing a brief in support of an appeal	\$
121	260	221	130	Request for oral hearing	\$
138	1,510	138	1,510	Petition to institute a public use proceeding	\$
140	110	240	55	Petition to revive - unavoidable	\$
141	1,210	241	605	Petition to revive - unintentional	\$
142	1,210	242	605	Utility issue fee (or reissue)	\$
143	430	243	215	Design issue fee	\$
144	580	244	290	Plant issue fee	\$
122	130	122	130	Petitions to the Commissioner	\$
123	50	123	50	Petitions related to provisional applications	\$
126	240	126	240	Submission of Information Disclosure Statement	\$
581	40	581	40	Recording each patent assignment per property (Times number of properties)	\$
146	760	246	380	Filing a submission after final rejection (37 C.F.R. §1.129(a))	\$
149	760	249	380	For each additional invention to be examined (37 C.F.R. §1.129(b))	\$
Other Fee (specify) <u>Assignment</u>					\$ 40.00
Other Fee (specify) _____					\$
** Reduced by Basic Filing Fee Paid					
SUBTOTAL (3)					\$40.00

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	760	201	380	Utility filing fee	\$ 760.00
106	310	206	155	Design filing fee	\$
107	480	207	240	Plant filing fee	\$
108	760	208	380	Reissue filing fee	\$
114	150	214	75	Provisional filing fee	\$
SUBTOTAL (1)					(\$) <u>760.00</u>

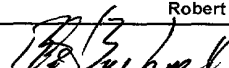
2. EXTRA CLAIM FEES

			Extra Claims	Fee from below	Fee Paid
Total claims	14	-20** =	0	x	=
Independent Claims	4	-3** =	1	x	= \$78.00
Multiple Dependent					=

** or number previously paid, if greater; For Reissues, see below

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	203	9	Claims in excess of 20	
102	78	202	39	Independent claims in excess of 3	
104	260	204	130	Multiple dependent claim, if not paid	
*109	78	209	39	** Reissue independent claims over original patent	
110	18	210	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)					(\$) <u>78.00</u>

SUBMITTED BY

Typed or Printed Name	Robert E. Bushnell, Esq.		
Signature		Date	28 December 1998

Complete (if applicable)

Reg. Number	27,774
Deposit Account User ID	

ANNEX D-10

Kang-Dong LEE

Examiner: to be assigned


Art Unit: to be assigned

NOTICE OF CHANGE OF ADDRESS

Sir:

Robert E. Bushnell,
Attorney-at-Law
1522 "K" Street, N.W., Suite 300,
Washington, D.C. 20005-1202
Telephone: 202-638-5740
Facsimile: 202-628-0755

Respectfully submitted,


Robert E. Bushnell
Attorney for Applicant
Reg. No.: 27,774

Folio: P55504
Date: December 28, 1998
REB/lj

TITLE OF THE INVENTION

**COMPUTER SYSTEM HAVING CONFLICT FIXING FUNCTION
AND CONFLICT FIXING METHOD**

CLAIM OF PRIORITY

This application makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. §119 from applications entitled *CD-ROM And Method For Recovering Computer System Having Conflicts*, *Computer System Processing the Function of Recovering from the Conflicts And Method Thereof* and *Computer And Method For Recovering Itself to a State Prior to Conflict* previously filed in the Korean Industrial Property Office on the 26th day of December 1997 and duly assigned Application Nos. 97-074450, 97-074451 and 97-074453 and an application entitled *Computer and Method for Recovering Itself to the State Prior to Conflict* previously filed in the Korean Industrial Property Office on the 16th day of June 1998 and duly assigned Application No. 98-022575.

Field of the Invention

The present invention relates to a computer system, and more particularly, to a computer system which gives an automatic fixing function when a conflict occurs, and an automatic conflict fixing method.

Description of the Related Art

U.S. Patent No 5,159,597 to Monahan et al describes a *Generic Error Recovery* method and apparatus. The error recovery subsystem employs a user editable file including the rules for defining the system state, the error states, and the sequences of recovery actions to be taken depending upon the comparison between the system state and the error states. Actions that constitute error recovery comprise restarting a software process, reinitializing a data area, rebooting a central processing unit, and resetting a piece of hardware. What is needed is a computer system that first tries to repair the conflict. If this fails, the system then tries to revert or reset the computer system to a normal state that occurred prior to the conflict.

SUMMARY OF THE INVENTION

To solve the above problem, it is an object of the present invention to provide a computer system having a conflict repair function, which allows a user to cure the conflict or revert the computer system to a previous state.

It is another object of the present invention to provide a method of reverting a computer system to a previous normal state when a conflict is sensed from the computer system.

It is still another objects of the present invention to provide a recording medium for easily fixing a conflict occurring on an auxiliary memory unit of a computer system, and a method thereof.

Accordingly, to achieve the first object, there is provided a computer system having a conflict repair function and including a control unit, a main memory, an auxiliary memory, and an input output device, wherein the control unit comprises: a state information recording portion for

collecting state information on the computer system and recording the collected information in the auxiliary memory; a conflict sensing portion for sensing a general protection fault, a system registry fault, and a system hardware information abnormality when the computer system is operated, and reporting the sensed faults to a user via the input output device; a state diagnosis portion for diagnosing the presence or absence of abnormality in the computer system according to a user's instruction, attempting to fix an abnormality using diagnosed contents when the abnormality is sensed, and reporting to the user via the input output device abnormality incapable of being fixed by the diagnosed contents; and an existing state reverting portion for reverting the computer system to a state when state information selected by the user among state information recorded in the state information database was produced.

To achieve the second object, there is provided a method of reverting a computer system to its previous state, comprising the steps of: (a) collecting and backing up state information of the computer system; (b) sensing a conflict of the computer system and reporting the sensed conflict to a user; and © reverting the computer system to a state when state information selected by the user from back-up state information was produced.

To achieve the third object, there is provided a recording medium for fixing a conflict of a computer system, comprising: a boot image loaded in a main memory installed in the computer system when the computer system is booted, for managing the operation of the computer system; a program image consisting of an operating system and application programs to be installed in an auxiliary memory unit of the computer system, and a list of the operating system and application programs; and a conflict repair control program having a code means (a) loaded in the main memory

1 of the computer system for checking whether the auxiliary memory unit is normal, and a code means
2 (b) for repairing damaged files in the auxiliary memory unit using the program image when
3 abnormality exists in the auxiliary memory unit.

4 To achieve the fourth object, there is provided a method of fixing a conflict generated on an
5 auxiliary memory in a computer system using a CD-ROM device including a CD-ROM, comprising
6 the steps of: (a) setting the CD-ROM device as a master device, booting the computer system,
7 checking a conflict of the auxiliary memory, and repairing a damaged system file; (b) reinstalling
8 an operating system in the auxiliary memory, comprising the substeps of: (b.1) setting the CD-ROM
9 device as a master device and booting the computer system again when a new booting when the
10 auxiliary memory is set as the master device fails; (b.2) backing up data files stored in the auxiliary
11 memory and formatting the auxiliary memory; (b.3) installing an operating system among a program
12 image recorded in the CD-ROM, in the auxiliary memory; and (b.4) setting the auxiliary memory
13 as a master device and newly booting the computer system; © reinstalling application programs in
14 the auxiliary memory using the program image recorded in the CD-ROM; and (d) restoring the data
15 file backed up in step (b.2) in the auxiliary memory.

16 BRIEF DESCRIPTION OF THE DRAWINGS

17 A more complete appreciation of the invention, and many of the attendant advantages
18 thereof, will be readily apparent as the same becomes better understood by reference to the following
19 detailed description when considered in conjunction with the accompanying drawings in which like
20 reference symbols indicate the same or similar components, wherein:

FIG. 1 is a flowchart illustrating an earlier process for repairing a conflict of an earlier computer system;

FIG. 2 illustrates a process where a conflict is repaired by a repair service man;

FIG. 3 is an exterior view of a desk top personal computer;

FIG. 4 is an exterior view of a notebook PC;

FIG. 5 is a block diagram of the configuration of a computer system having a conflict repair function, according to the present invention;

FIG. 6 shows the contents recorded in a recording medium for fixing a conflict of a computer system according to the present invention;

FIG. 7 is a flowchart illustrating a process for reverting a computer system to its previous normal state, according to the present invention;

FIG. 8 shows an example of a user interface which displays to a user a list of state information stored in a state information database; and

FIG. 9 is a flowchart illustrating a process for fixing a conflict generated on an auxiliary memory unit of a computer system using a CD-ROM, according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

According to earlier computers, as shown in FIG. 1, an operating system (e.g., Windows 95®) of a computer system senses a conflict occurring while the computer system operates (in steps 100 and 110). The operating system generates an error message when the conflict occurs on a device and generates a general protection fault (GPF) or terminates the program without solving the conflict

1 when the conflict occurs during operation of a program (in steps 120 and 130). In this situation, if
2 a user does not repair the generated conflict appropriately, the conflict develops into a fatal error of
3 the entire computer system, and, in a bad case, a hard disk may have to be reformatted or replaced.
4 Meanwhile, when a user has no idea how to fix a conflict generated on a computer system, the user
5 request a repair service to a service center as shown in FIG. 2. Then, the service center receives the
6 request and sends a repair service man to the user, and the repair man directly checks and repairs the
7 computer system of the user.

8 However, in the earlier method, even though a very small conflict is generated on the
9 computer system, the repair service man must personally visit a place where the computer system
10 is located. Also, when a conflict occurs frequently on the computer system, it is difficult to get a
11 repair service at a proper time. Thus, the user requires considerably a lot of time and costs to repair
12 the conflict occurring on the computer system.

13 A computer system having a conflict repair function according to the present invention, is
14 a personal computer (PC) such as a desk top PC shown in FIG. 3 or a notebook PC shown in FIG.
15 4, and has a configuration as shown in FIG. 5. Hereinafter, an operating system for the computer
16 system according to the present invention is considered as a Windows ®.

17 Referring to FIG. 5, a computer system having a conflict repair function according to the
18 present invention includes a conflict repair control unit 500, a main memory 510, an input output
19 unit 520, an auxiliary memory unit 530, and a conflict repair CD-ROM 540. The conflict repair
20 control unit 500 is comprised of a state information recording portion 502, a conflict sensing portion
21 504, a state diagnosing portion 506, and an existing state reverting portion 508.

1 The state information recording portion 502 stores the state information of a computer system
2 in the auxiliary memory unit 530 before the computer system terminates or at the point of time
3 determined by a user. The state information includes system information such as a registry of
4 Window95® and state data of device drivers. The state information recording unit 500 forms a state
5 information database 532 in the auxiliary memory unit 530 with the state information. The state
6 information database 532 includes as many state information blocks as determined by the user, and
7 each of the state information blocks contains state information generated by the state information
8 recording portion 502. State information stored for the longest time is updated by new state
9 information. The state information database 532 in the auxiliary memory unit 530 can further
10 include state information of the computer system when it is forwarded, and state information of the
11 computer system immediately before an application program is installed in it.

12 The conflict sensing portion 504 monitors the computer system periodically and senses
13 generation of a conflict. That is, the conflict sensing portion 504 senses a general protection fault
14 (GPF), a system registry fault, and abnormality of system hardware information, from the computer
15 system. For example, a process handler constituting a kernel of an operating system senses the GPF
16 generated when a program is executed in a virtual memory space.

17 The state diagnosing portion 506 diagnoses the entire state of the computer system at the time
18 determined by a user, and reports the presence or absence of abnormality to the user. The computer
19 system can include a state diagnostic button to be used when the user recognizes that state diagnosis
20 is necessary. Accordingly, if the user presses down on the state diagnosis button, the state
21 diagnosing portion 506 is immediately driven. The diagnosed content obtained by the state

diagnosing portion 506 includes version numbers and information on the operation state of each device, an operating system and application programs installed in the computer system.

The diagnosed contents of the computer system processed the state diagnosing portion 506 will now be described in detail. As for the device, the type of a processor is checked, the capacity of the main memory 510 is found out by checking the state of the main memory 510, the type, resolution, and color of a video card are checked, a check of whether an MPEC card will be recognized is made by executing an MPEC file, an execution state of a modem command is tested, the operations of each of a floppy disk device, a CD-ROM device, and a digital video disk (DVD) device are tested, and serial/parallel ports are checked. As for the operating system, a check of whether system files in a system directory are damaged is made, and a configuration file and registration information are also checked on whether they are damaged. The state diagnosing portion 506 repairs an abnormality by estimating the cause of generation of the abnormality on the basis of the above diagnosed contents. Also, when a conflict incapable of being repaired by current diagnosis contents occurs, the state diagnosing portion 506 produces a message for reporting the fact to the user.

The existing state reverting portion 508 reverts the computer system to its previous normal state using a state information block selected by the user among state information blocks included in the state information database 532 of the auxiliary memory unit 530. The auxiliary memory unit 530, such as a hard disk driver, a floppy disk driver, and a tape driver, stores programs and data files which are to be loaded in the main memory 510 and then executed.

The conflict repair CD-ROM 540 is used when a conflict, unable to be fixed even by existing

backed-up state information and diagnosis information, is generated in the computer system having a conflict repair function according to the present invention or when the user intends to newly install the operating system and application programs of the computer system.

Referring to FIG. 6, the conflict repair CD-ROM records a boot image 600 for booting the computer system from a CD-ROM driver, a program image 610 of an operating system and application programs to be installed, and a CD-ROM repair control program 620. The boot image 600 is an image of system files included in an operating system for managing the operation of a computer system by being loaded in the main memory 510 of the computer system when the computer system sets a CD-ROM driver as a master device to be booted. The program image 610 is a back-up image of an operating system and application systems which are basically installed in the auxiliary memory unit 530 in the computer system. The program image 610 is compressed and backed up. The program image 610 includes a list of the title, size, directory, and attribute of each file to allow the user to select files to be installed in the auxiliary memory unit 530.

The CD-ROM repair control program 620 includes an inspection code means 630 and a repair code means 640. The inspection code means 630 is loaded in the main memory 510 provided in the computer system and inspects whether the auxiliary memory unit 530 is abnormal. The repair code means 640 repairs damaged files in the auxiliary memory unit 530 using the program image 610 stored in the conflict repair CD-ROM 540. Also, the repair code means 640 includes a total installation portion 642 for newly installing all the programs included in the program image, and a selective installation unit 644 for selecting and installing only programs desired by a user. The user can select either the total installation unit 642 or the selective installation unit 644.

1 The operation of the present invention will now be described in detail. Referring to FIG. 7,
2 a process for reverting a computer system to its initial software installation state is as follows. First,
3 when the computer system is normally booted, conflict repair control is executed in a background
4 operation to periodically inspect the computer system, in steps 700 and 705. When the conflict
5 repair control unit senses a GPF, a system registry error, or a system hardware information
6 abnormality from the computer system, it generates a top most window and receives instructions
7 from the user, in steps 710 and 735. When the user presses down on a state diagnostic button to
8 check his or her computer system, the state of the computer system is diagnosed, and when a conflict
9 is sensed, the conflict is immediately fixed using diagnosed contents, in steps 715 through 725.
10 However, when the sensed conflict cannot be fixed by the diagnosed contents, the conflict repair
11 control unit generates the top most window and receives an instruction from the user, in steps 730
12 and 735.

13 At this time, the conflict repair control unit presents a list of state information stored in the
14 state information database of the auxiliary memory unit to the user. FIG. 8 shows an example of a
15 window for displaying a list of state information stored in the state information database to the user.
16 When the user selects a state information item from the state information list so that the computer
17 system reverts to its original state, the conflict repair control unit reads out the selected state
18 information from the auxiliary memory unit so that the computer system reverts to a state before the
19 state information was backed up, in steps 740 and 745. When the revert to a previous state is
20 completed or the user does not want the revert to an original state, the conflict repair control unit
21 reverts to the background operation and a hidden operation, in step 750.

When the computer system is terminated, the conflict repair control unit inspects the state information of the system, and the inspected system state information is stored in the state information database of the auxiliary memory unit, in step 755. Here, when previously allocated regions for the state information database of the auxiliary memory unit are all used, new state information is overwritten in a region storing the oldest state information. When the computer system is abnormally booted or the user determines that a serious conflict is generated on the computer system, conflict repair is tried using the conflict repair CD-ROM, in step 760. The conflict fixing process using the conflict repair CD-ROM will now be described referring to FIG. 9.

The CD-ROM device 130 is determined as a master device, the boot image of FIG. 6 is loaded in the main memory of the computer system, and thus the computer system is booted from a CD-ROM disk, in step 900. The user loads the CD-ROM repair control unit of the CD-ROM of FIG. 6 in the main memory of the computer system, and executes the CD-ROM repair control program to check the state of a hard disk device, in step 905. Here, a scandisk command provided by MS-DOS® can be used. The CD-ROM repair control program repairs a system file where abnormality is sensed by executing the scandisk to a content read from the program image of the CD-ROM, and boots the computer system again by determining the hard disk device as a master device, in step 910.

When any of the booting by the MS-DOS® and that by the Windows® is not properly accomplished, it is determined that a serious conflict occurs on a hard disk, and the CD-ROM device is set to be a master device and the computer system is thus booted from the CD-ROM disk, in steps 915, 920 and 940. Thereafter, the CD-ROM repair control program is again executed. At this time,

the CD-ROM repair control program compresses all the data files stored in the hard disk and backs up the compressed data files to another auxiliary memory unit of the computer system, in step 925. Here, the another auxiliary memory unit can be a floppy disk or other hard disks with no conflict. The CD-ROM repair control unit newly partitions and formats the hard disk using FDISK and FORMAT commands of MS-DOS®, in step 930. An operating system is again installed in the hard disk by reading system files from the program image of the conflict repair CD-ROM, in step 935. When both the booting by the MS-DOS® and that by the Windows® are properly accomplished, the CD-ROM repair control program is executed to analyze the state of programs installed in the hard disk, in steps 915, 940 and 945.

The CD-ROM repair control program deletes all abnormal programs, releases the compression of the images of application programs among program images shown in FIG. 6, and installs the compression-released programs in the hard disk again, in steps 950 and 955. The CD-ROM repair control program finishes recovery of the hard disk by reading the image of data files backed up in step 925 and again storing the read data files in the hard disk, in step 960. Meanwhile, an embodiment of the method of reverting the computer system to its previous state according to FIG. 7, and an embodiment of the method of fixing a conflict of the auxiliary memory unit of the computer system according to FIG. 9, each can be written in a program which can be executed in a computer. Also, these embodiments can be accomplished in a common-use digital computer which operates a program from a medium used in a computer. The medium includes a magnetic storage medium (e.g., a ROM, a floppy disk, a hard disk, etc.), an optical reading medium (e.g., a CD-ROM, a DVD, etc.), and a storage medium such as a carrier wave (e.g., transmission via Internet).

1 A functional program, code and code segments for accomplishing the present invention can
2 be easily inferred by programmers skilled in the art to which the present invention pertains.
3 According to the present invention, a conflict generated on a personal computer system can be easily
4 fixed. When an unrepairable conflict occurs, the computer system with the conflict can easily revert
5 to its previous state using existing state information. Also, when a serious conflict is generated on
6 an auxiliary memory unit including a hard disk device, the conflict can be easily repaired by image
7 files recorded in a CDROM.

What is claimed is:

1. A recording medium for fixing a conflict of a computer system, comprising:
 - a boot image loaded in a main memory installed in the computer system when the computer system is booted, for managing the operation of the computer system;
 - a program image consisting of an operating system and application programs to be installed in an auxiliary memory unit of the computer system, and a list of the operating system and application programs; and
 - a conflict repair control program having a code means (a) loaded in the main memory of the computer system for checking whether the auxiliary memory unit is normal, and a code means (b) for repairing damaged files in the auxiliary memory unit using the program image when abnormality exists in the auxiliary memory unit.
2. The recording medium for fixing a conflict of a computer system as claimed in claim 1, wherein the recording medium is a CD-ROM.
3. The recording medium for fixing a conflict of a computer system as claimed in claim 1, wherein the code means (b) of the conflict repair control program comprises:
 - a code unit for newly installing all the files included in the program image in the hard disk;
 - and
 - a code unit for displaying the list included in the program image and newly installing only programs selected by a user in the hard disk.

1 4. A computer system having a conflict repair function and including a control unit, a
2 main memory, an auxiliary memory, and an input output device, wherein the control unit comprises:
3 a state information recording portion for collecting state information on the computer system
4 and recording the collected information in the auxiliary memory;
5 a conflict sensing portion for sensing a general protection fault, a system registry fault, and
6 a system hardware information abnormality when the computer system is operated, and reporting
7 the sensed faults to a user via the input output device;
8 a state diagnosis portion for diagnosing the presence or absence of abnormality in the computer
9 system according to a user's instruction, attempting to fix an abnormality using diagnosed contents
10 when the abnormality is sensed, and reporting to the user via the input output device abnormality
11 incapable of being fixed by the diagnosed contents; and
12 an existing state reverting portion for reverting the computer system to a state when state
13 information selected by the user among state information recorded in the state information database
14 was produced.

1 5. The computer system having a conflict repair function as claimed in claim 4, wherein
2 the state information recording portion allocates a predetermined region for a state information
3 database in the auxiliary memory, and records new state information which replaces oldest state
4 information.

5 6. The computer system having a conflict repair function as claimed in claim 4, wherein
6 the input output device further comprises a state diagnosis button, and the state diagnosis portion is
7 performed by a user pressing down on the state diagnosis button.

1 7. The computer system having a conflict repair function as claimed in claim 4, further
2 comprising a recording medium which includes:

3 a boot image loaded in the main memory when the computer system is booted, for managing
4 the operation of the computer system;

5 a program image consisting of an operating system, application programs, and a list of the
6 operating system and application programs to be installed in the auxiliary memory unit; and

7 a conflict repair control unit including a code means (a) loaded in the main memory for
8 checking whether the auxiliary memory unit is normal, and a code means (b) for repairing damaged
9 files in the auxiliary memory unit using the program image when abnormality exists in the auxiliary
10 memory unit.

1 8. The recording medium for fixing a conflict of a computer system as claimed in claim
2 7, wherein the recording medium is a CD-ROM.

1 9. The recording medium for fixing a conflict of a computer system as claimed in claim
2 7, wherein the code means (b) of the conflict repair control program comprises:

3 a code unit for newly installing all the files included in the program image in the hard disk;

4 and

5 a code unit for displaying the list included in the program image and newly installing only
6 programs selected by a user in the hard disk.

1 10. A method of reverting a computer system to its previous state, comprising the steps
2 of:

3 (a) collecting and backing up state information of the computer system;

4 (b) sensing a conflict of the computer system and reporting the sensed conflict to a user; and

5 (c) reverting the computer system to a state when state information selected by the user from
6 back-up state information was produced.

1 11. The method of reverting a computer system to its previous state as claimed in claim
2 8, wherein the step (b) comprises the substeps of:

3 (b.1) diagnosing the state of the computer system;

4 (b.2) fixing an abnormality using diagnosed information when the abnormality is sensed from
5 the computer system; and

6 (b.3) reporting abnormality which was not fixed in step (b.2), to the user.

1 12. The method of reverting a computer system to its previous state as claimed in claim
2 11, wherein substep b1 comprises the step of:

3 pressing down a state diagnostic button to check on the computer system.

13. The method of reverting a computer system to its previous state as claimed in claim 10, wherein step c comprises the step of:

presenting a list of state information stored in the state information database of the auxiliary memory unit to the user.

14. A method of fixing a conflict generated on an auxiliary memory in a computer system using a CD-ROM device including a CD-ROM, comprising the steps of:

(a) setting the CD-ROM device as a master device, booting the computer system, checking a conflict of the auxiliary memory, and fixing a damaged system file;

(b) reinstalling an operating system in the auxiliary memory, comprising the substeps of:

(b.1) setting the CD-ROM device as a master device and booting the computer system again when a new booting when the auxiliary memory is set as the master device fails;

(b.2) backing up data files stored in the auxiliary memory and formatting the auxiliary memory;

(b.3) installing an operating system among a program image recorded in the CD-ROM, in the auxiliary memory; and

(b.4) setting the auxiliary memory as a master device and newly booting the computer system;

(c) reinstalling application programs in the auxiliary memory using the program image recorded in the CD-ROM; and

(d) restoring the data file backed up in step (b.2) in the auxiliary memory.

1 15. The method of fixing a conflict of claim 14, further comprising:
2 reverting the computer system to a state previous to the one where a conflict occurred
3 when repairing of the computer system fails.

ABSTRACT OF THE DISCLOSURE

A computer system for easily fixing a generated conflict, and a method thereof are provided.

This computer system includes a CD-ROM for fixing a conflict, and a control unit. The control unit includes a state information recording portion for collecting state information on the computer system and recording the collected information in the auxiliary memory, a conflict sensing portion for sensing a general protection fault, a system registry fault, and a system hardware information abnormality when the computer system operates, and reporting the sensed faults to a user via the input output device, a state diagnosis portion for diagnosing the presence or absence of abnormality in the computer system according to a user's instruction, attempting to fix the abnormality using diagnosed contents when the abnormality is sensed, and reporting to the user via the input output device abnormality incapable of being fixed by the diagnosed contents, and an existing state reverting portion for reverting the computer system to a state when state information selected by the user among state information recorded in the state information database was produced. Accordingly, a conflict generated on a personal computer system can be easily cured. When an unrepairable conflict occurs, the computer system with the conflict can easily revert to a previous state using existing state information. Also, when a serious conflict is generated on the auxiliary memory unit including a hard disk device, the conflict can be easily repaired by image files recorded in the CD-ROM.

FIG. 1

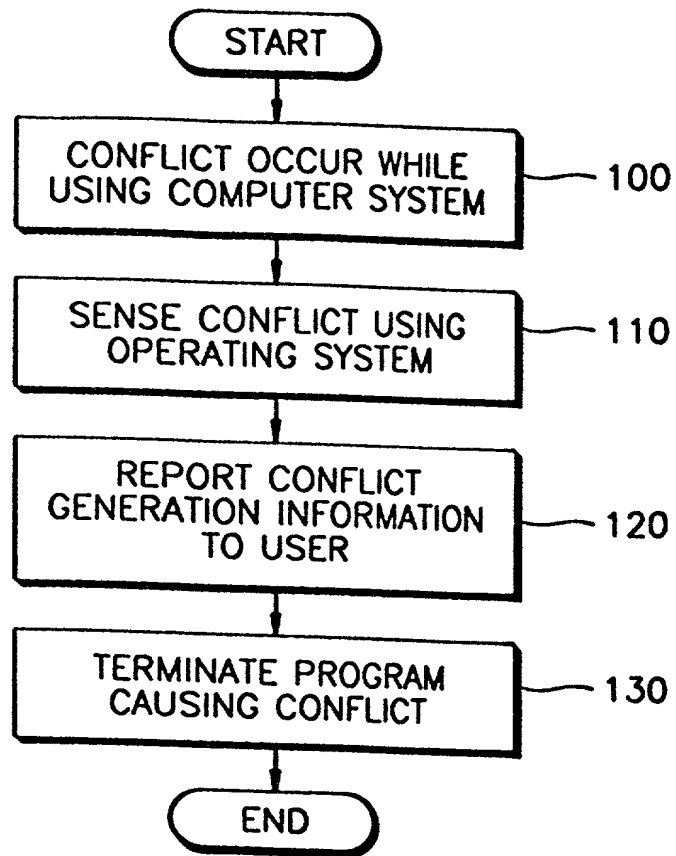


FIG. 2

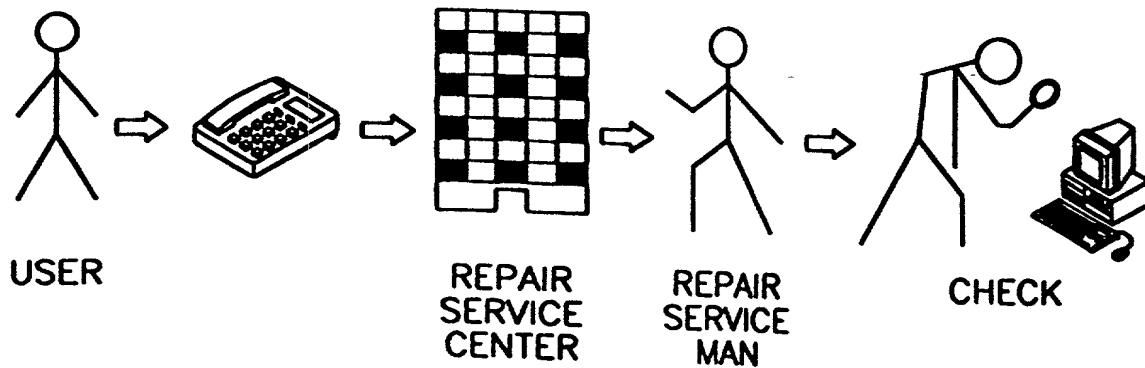


FIG. 3

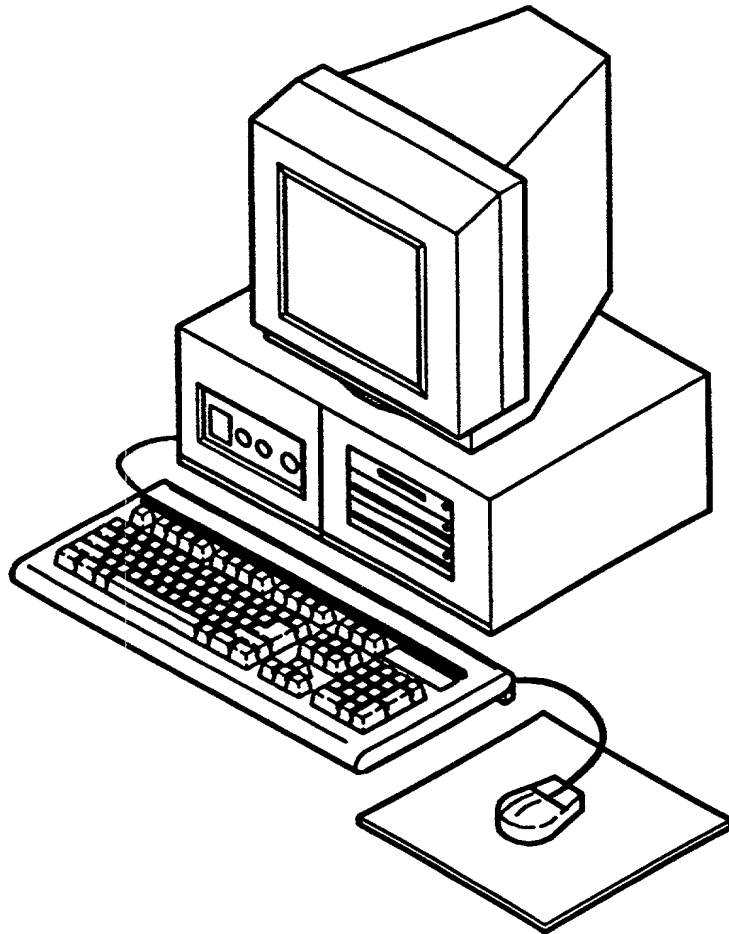


FIG. 4

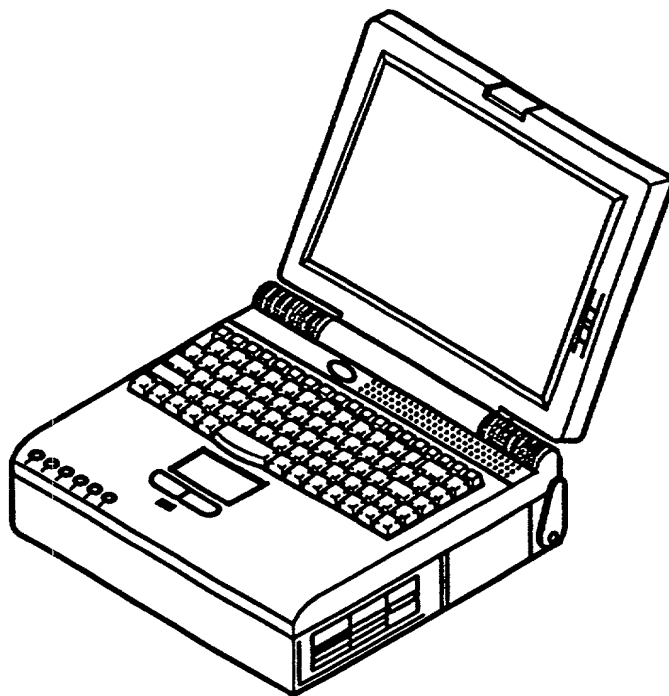


FIG. 5

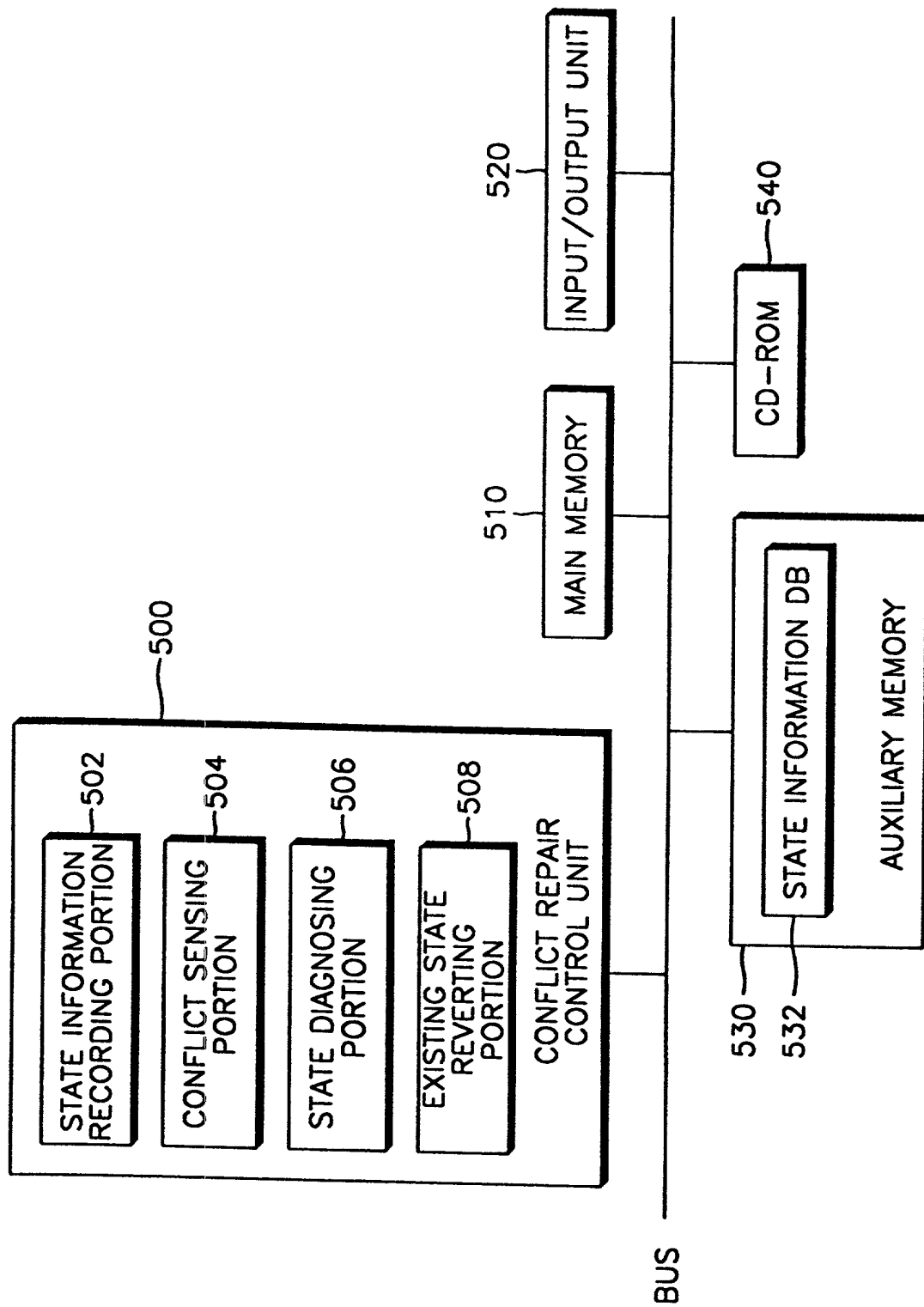


FIG. 6

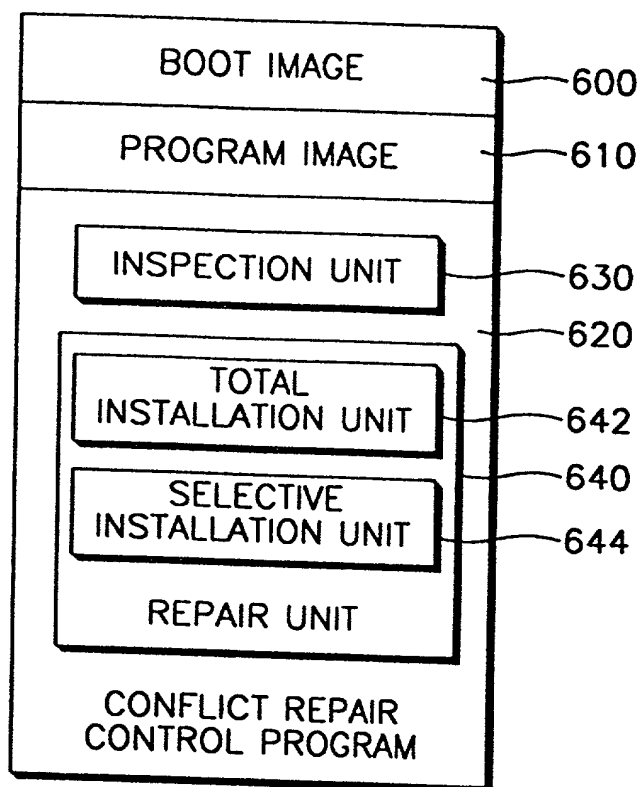


FIG. 7

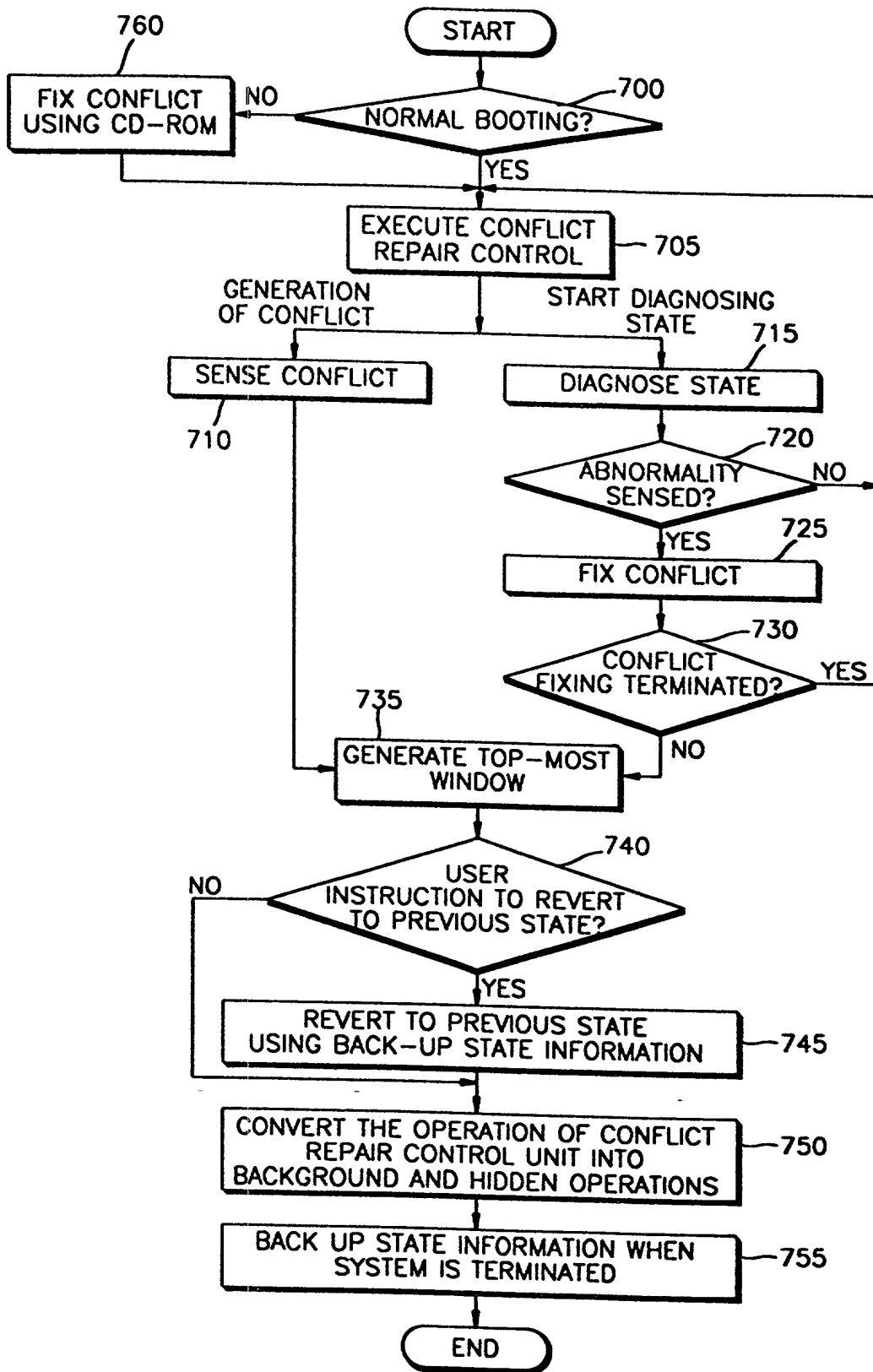


FIG. 8

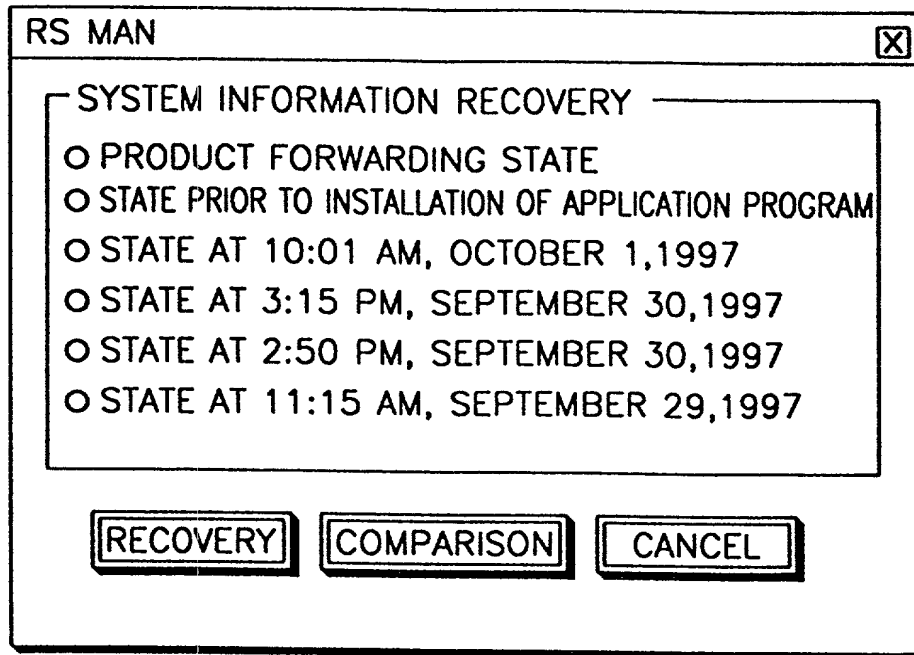
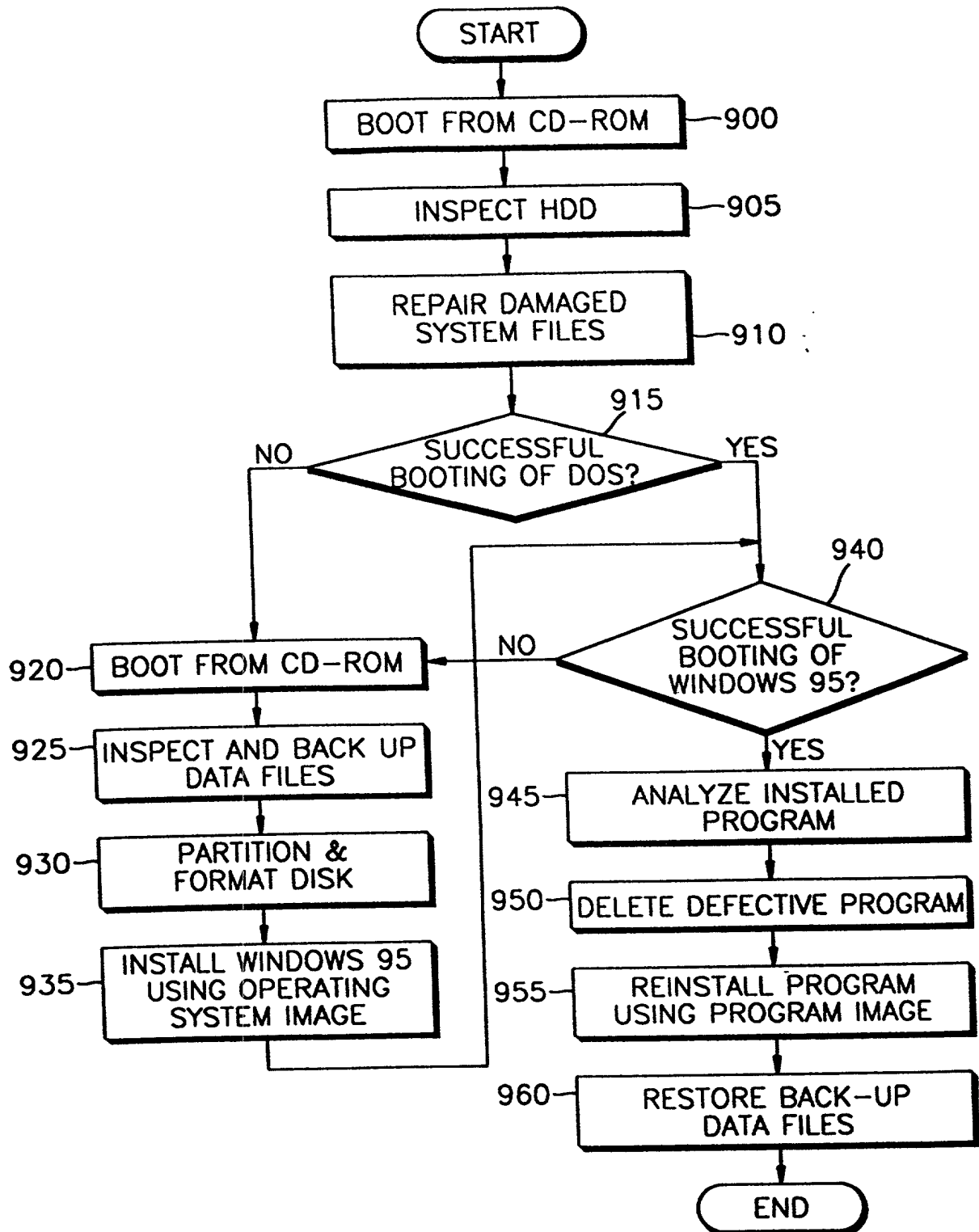


FIG. 9



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

KANG-DONG LEE

Serial No.: To be Assigned

Examiner: To be Assigned

Filed: December 28, 1998

Art Unit: To be Assigned

For: COMPUTER SYSTEM HAVING CONFLICT FIXING FUNCTION AND CONFLICT
FIXING METHOD

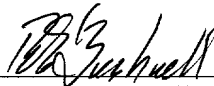
TRANSMITTAL OF DECLARATION

Assistant Commissioner
for patents
Washington, D.C. 20231

Sir:

This transmittal accompanies an original Declaration for the above-referenced application.

Respectfully submitted,



Robert E. Bushnell,
Attorney for the Applicant
Reg. No.: 27,774

Suite 300, 1522 "K" Street, N.W.
Washington, D.C. 20005-1202
Tel: (202) 638-5740
Fax: (202)-628-0755

Folio: P55504
Enclosure: As stated
28 December 1998
I.D.: REB/sa

PTO/SB/01 (6/95)

DECLARATION

Docket No. P55504

AS A HEREIN NAMED INVENTOR, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name

I believe that I am the original, first and sole (if only one name is listed below), or an original, first and joint inventor (if plural names are listed below), of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE: COMPUTER SYSTEM HAVING CONFLICT FIXING FUNCTION AND CONFLICT FIXING METHOD

the specification of which either is attached hereto or otherwise accompanies this Declaration, or

☐ was filed in the U.S. Patent & Trademark Office on _____ and assigned Serial No. _____☐ and (if applicable) was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability and to the examination of this application in accordance with Title 37 of the Code of Federal Regulations §1.56. I hereby claim foreign priority benefits under Title 35, U.S. Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, or §119(c) of any United States provisional application(s), listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Application Number	Country	Day/Month/Year filed	Priority Claimed: Yes [V] No []
97-74450	Rep. of Korea	26/December/1997	Yes [V] No []
97-74451	Rep. of Korea	26/December/1997	Yes [V] No []
97-74453	Rep. of Korea	26/December/1997	Yes [V] No []
98-22575	Rep. of Korea	16/June/1998	Yes [V] No []

I hereby claim the benefit under Title 35, U.S. Code, §120, of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, U.S. Code, §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, The Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	STATUS: patented, pending, abandoned
------------------------	-------------	--------------------------------------

Application Serial No.	Filing Date	STATUS: patented, pending, abandoned
------------------------	-------------	--------------------------------------

I hereby revoke all previously granted powers of attorney and appoint the following attorneys: Robert E. Bushnell, Reg. No. 27,774, Michael D. Parker, Reg. No. 34,973, and Jeffrey D. Carter, Reg. No. 37,795, to prosecute this application and to transact all business in the U.S. Patent & Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application, with full power of appointment and with full power to substitute an associate attorney or agent, and to receive all patents which may issue thereon, and request that all correspondence be addressed to:

Robert E. Bushnell,
Attorney-at-Law
Suite 425, 1511 "K" Street, N.W.
Washington, D.C. 20005-1401

Payor No. 008439
Area Code: 202-638-5740

I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST OR SOLE INVENTOR: Kang-dong Lee

Citizenship: Korea

Inventor's signature: Kang-dong Lee

Date: 23/December/1998

Residence & Post Office Address: 135-104 Jugong 2-danji Apt., 990 Maetan 3-dong
Paldal-gu, Suwon-city, Kyungki-do, Rep. of Korea

FULL NAME OF SECOND JOINT INVENTOR: _____

Citizenship: _____

Inventor's signature: _____

Date: _____

Residence & Post Office Address: _____

FULL NAME OF THIRD JOINT INVENTOR: _____

Citizenship: _____

Inventor's signature: _____

Date: _____

Residence & Post Office Address: _____

☐ Additional inventors are being named on separately numbered sheets attached hereto.

AS A BELOW NAMED INVENTOR, I hereby declare that.

My residence, post office address and citizenship are as stated next to my name.

I believe that I am the original, first and sole (if only one name is listed below), or an original, first and joint inventor (if plural names are listed below), of the subject matter which is claimed and for which a patent is sought on the invention entitled.

TITLE: **COMPUTER SYSTEM HAVING CONFLICT FIXING FUNCTION AND CONFLICT FIXING METHOD**

the specification of which either is attached hereto or otherwise accompanies this Declaration, or

☐ was filed in the U.S. Patent & Trademark Office on _____ and assigned Serial No. _____

☐ and (if applicable) was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability and to the examination of this application in accordance with Title 37 of the Code of Federal Regulations §1.56. I hereby claim foreign priority benefits under Title 35, U.S. Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, or §119(e) of any United States provisional application(s), listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed

97-74450, 97-74451, 97-74453	KOREA	26 DECEMBER 1997	Priority Claimed: Yes [X] No []
(Application Number)	(Country)	(Day/Month/Year filed)	

98-22575	KOREA	16 JUNE 1998	Yes [x] No []
(Application Number)	(Country)	(Day/Month/Year filed)	

			Yes [] No []
(Application Number)	(Country)	(Day/Month/Year filed)	

I hereby claim the benefit under Title 35, U.S. Code, §120, of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, U.S. Code, §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, The Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(STATUS patented, pending, abandoned)
--------------------------	---------------	---------------------------------------

(Application Serial No.)	(Filing Date)	(STATUS patented, pending, abandoned)
--------------------------	---------------	---------------------------------------

I hereby revoke all previously granted powers of attorney and appoint the following attorneys: Robert E. Bushnell, Reg. No. 27,774, Michael D. Parker, Reg. No. 34,973, and Henry M. Zykorie, Reg. No. 27,477, to prosecute this application and to transact all business in the U.S. Patent & Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application, with full power of appointment and with full power to substitute an associate attorney or agent, and to receive all patents which may issue thereon, and request that all correspondence be addressed to:

Robert E. Bushnell,
Attorney-at-Law
Suite 300, 1522 "K" Street, N.W.
Washington, D.C. 20005-1202

Payor No. 008439

Area Code: 202-638-5740

I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

FULL NAME OF FIRST OR SOLE INVENTOR: KANG-DONG LEE

Citizenship: KOREA

Inventor's signature: _____
Residence & Post Office Address: 135-104 Jugong 2-danji Atp 990 Maetan 3-dong, Paldal-gu
Suwon-city, Republic of Korea

Date: _____

FULL NAME OF SECOND JOINT INVENTOR: _____

Citizenship: _____

Inventor's signature: _____
Residence & Post Office Address: _____

Date: _____

FULL NAME OF THIRD JOINT INVENTOR: _____

Citizenship: _____

Inventor's signature: _____
Residence & Post Office Address: _____

Date: _____

FULL NAME OF FOURTH JOINT INVENTOR: _____

Citizenship: _____

Inventor's signature: _____
Residence & Post Office Address: _____

Date: _____